# CLAIMS

Having thus described my invention what I claim as new, and desire to secure by Letters Patent is:

1.      A method for changing an array comprising the steps of:

     changing a variable in a target array to information that represents the location of a different variable when said target array, consisting of a combination of a plurality of various kinds of elements is viewed along a path extending in a predetermined direction, and when a different, complementary variable is present upstream of a variable included in said target array;

     changing said variable to information indicating that no different, complementary variable is present when no different, complementary variable is present upstream of said variable in said target array; and

     repeating said steps for all the other variables included in said target array, so that said target array is changed.

2.      A method for analyzing the structure of an array comprising the steps of:

     changing a variable that is included in a target array consisting of a combination of a plurality of different kinds of elements and that is replaceable of another element into information that represents the location of the same variable when said target array is viewed along a path extending in a predetermined direction, and when said same variable is present upstream of said replaceable variable;

     changing, when said same variable is not present upstream of said replaceable variable in said target array, all the variables in said target array into information indicating that said same variable is not present, and thus changing said target array into a first array;

     changing said target array to a second array by using the method according to claim 1; and

     analyzing the structure of said target array by using said first array and said second array.

1    3.     The method according to claim 2, wherein a single suffix tree is prepared while

2    said first and said second arrays are regarded as a single pair of corresponding

3    character strings;

4          wherein, from among sequences of said first and said second arrays, which are

5    provided as labels for edges of said single suffix tree, information that indicates the

6    location of said same variable or said different variable that is not present in each of

7    said sequences is replaced with information that indicates the absence of said same

8    variable or said different variable; and

9          wherein said suffix tree is employed to analyze the structure of said target

10    array.


1    4.     The method according to claim 2, wherein said target array is changed to said

2    first and said second arrays by using, as information that indicates the position of the

3    different variable or the position of said same variable, numerical information that

4    represents the number of elements arranged in said target array beginning at the

5    position of a target variable and continuing up to the position of said same variable, or

6    said different variable;

7          wherein, for said first and said second thus obtained arrays, all of said

8    information indicating that said different variable or said same variable is not present

9    in said target array is replaced with numerical information, obtained by inverting the

10    positive and negative signs of said numerical information, indicating the number of

11    elements that are present in another array at locations corresponding to said

12    information;

13          wherein a suffix tree is prepared by regarding the obtained array as a character

14    string; and

15          wherein, among the sequences of said obtained array that are provided as

16    labels for edges of said suffix tree, numerical information indicating the positioning of

17    said same variable or said different variable that is not present in each of said

18    sequences is replaced with information indicating that said same variable or said

19    different variable is not present; and

20     wherein said suffix tree is employed to analyze the structure of said target

21     array.

1    5.     The method according to claim 3, wherein said suffix tree is employed to

2    extract a sequence that has the same structure and that frequently appears in said target

3    array, so that said structure of said target array is analyzed.

1    6.     The method according to claim 4, wherein said suffix tree is employed to

2    extract a sequence that has the same structure and that frequently appears in said target

3    array, so that said structure of said target array is analyzed.

1    7.     The method according to claim 3, wherein said target array is an array where

2    said first target array, first identification information, said second target array, first

3    identification information, said second target array and second identification

4    information are arranged in order; and wherein, when said suffix tree is employed to

5    search for said common sequence for said first and said second arrays, said structures

6    of said first array and said second array are analyzed.

1    8.     The method according to claim 4, wherein said target array is an array

2    where said first target array, first identification information, said second target array,

3    first identification information, said second target array and second identification

4    information are arranged in order; and wherein, when said suffix tree is employed to

5    search for said common sequence for said first and said second arrays, said structures

6    of said first array and said second array are analyzed.

1    9.     An apparatus for analyzing the structure of an array comprising:

2           first conversion means for converting a target array consisting of a

3    combination of a plurality of different kinds of elements into a first array by changing

4    a variable that is replaceable with another element in said target array into information

5    representing the location of the same variable when said target array is viewed along a

6    path extending in a predetermined direction, and when said same variable is present

7    upstream of said variable, and by changing, when said same variable is not present

8    upstream of said replaceable variable in said target array, all the variables in said

9    target array into information indicating that said same variable is not present;

10        second conversion means for changing said target array into a second

11   array by changing a replaceable variable in a target array into information representing

12   the location of the different variable when said target array is viewed along a path

13   extending in a predetermined direction, and when a different variable that is

14   complementary is  present upstream of said replaceable variable and by changing,

15   when said different variable is not present upstream of said replaceable variable in said

16   target array, all the variables in said target array into information indicating that said

17   different variable is not present; and

18        analyzation means for employing said first and said second arrays to

19   analyze the structure of said target array.


1    10.    A storage medium on which a program is stored to permit a computer to

2    perform processing comprising:

3        a step of converting a target array consisting of a combination of a plurality of

4    different kinds of elements into a first array by changing a variable that is replaceable

5    with another element in said target array into information representing the location of

6    the same variable when said target array is viewed along a path extending in a

7    predetermined direction, and when said same variable is present upstream of said

8    variable, and by changing, when said same variable is not present upstream of said

9    replaceable variable in said target array, all the variables in said target array into

10   information indicating that said same variable is not present;

11       a second step of changing said target array into a second array by changing a

12   replaceable variable in a target array into information representing the location of the

13   different variable when said target array is viewed along a path extending in a

14   predetermined direction, and when a different variable that is complementary is

15   present upstream of said replaceable variable, and by changing, when said different

16   variable is not present upstream of said replaceable variable in said target array, all the

17    variables in said target array into information indicating that said different variable is

18    not present; and

19         a third step of employing said first and said second arrays to analyze the

20    structure of said target array.


1    11.     A transmission medium for transmitting a program to permit a computer to

2    perform processing comprising:

3         a step of converting a target array consisting of a combination of a plurality of

4    different kinds of elements into a first array by changing a variable that is replaceable

5    with another element in said target array into information representing the location of

6    the same variable when said target array is viewed along a path extending in a

7    predetermined direction, and when said same variable is present upstream of said

8    variable, and by changing, when said same variable is not present upstream of said

9    replaceable variable in said target array, all the variables in said target array into

10   information indicating that said same variable is not present;

11        a second step of changing said target array into a second array by changing a

12   replaceable variable in a target array into information representing the location of the

13   same variable when said target array is viewed along a path extending in a

14   predetermined direction, and when a different variable that is complementary is

15   present upstream of said replaceable variable, and by changing, when said different

16   variable is not present upstream of said replaceable variable in said target array, all the

17   variables in said target array into information indicating that said different variable is

18   not present; and

19        a third step of employing said first and said second arrays to analyze the

20   structure of said target array.


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